PATENT
TS9523 (US)
CML:EM

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF APPEALS AND INTERFERENCES

In re application of	)	
	)	
PETER JAMES WARDLE and	)	
WILLIAM LEONARD ALEXANDER KING	)	Confirmation No.: 9298
	)	
Serial No. 10/561,589	)	Group Art Unit: 1797
	)	
Filed February 14, 2007	)	Examiner: Brian A. McCaig
	)	
PROCESS TO PREPARE A LUBRICATING BASE OIL	)	April 16, 2010
	)	

COMMISSIONER FOR PATENTS
P. O. Box 1450
Alexandria, VA 22313-1450

Sir:

APPEAL BRIEF

Applicants hereby submit this Appeal Brief in order to appeal the final rejection of claims 1-18 in the Office Action mailed November 17, 2009. Please charge any fees that are necessary in connection with the filing of this brief to Shell Oil Company, Deposit Account No. 19-1800.

Real Party in Interest

The real party in interest is Shell Oil Company.

Related Appeals and Interferences

To the best of the undersigned's knowledge, there are no related appeals or interferences.

Status of Claims

Claims 1-18 were finally rejected in the Office Action mailed November 17, 2009 and are on appeal.

Status of Amendments

No amendments to the claims have been filed since the Final Office Action.

Summary of Claimed Subject Matter

The invention as set forth in claim 1 is directed to a process to prepare a base oil having a target viscosity index of above 80 and a saturates content of above 90 wt% from a crude derived feedstock. See page 1, lines 1-5 of the specification. The first step of the process involves contacting a crude derived feedstock in the presence of hydrogen with a catalyst comprising at least one Group VIB metal component and at least on non-noble Group VIII metal component supported on a refractory oxide carrier. This step is discussed in the specification on page 4, line 8 to page 7, line 7. In the second step, a Fischer-Tropsch derived fraction boiling at least partly in the base oil range is added to the effluent of step (a) in an amount effective to achieve the target viscosity index of the final base oil. This step is discussed on page 7, line8 to page 10, line 32 of the specification. In the third step, the mixture obtained in the second step is dewaxed. This step is discussed in the specification at page 10, line 33 to page 14, line 3. Advantages of the invention are discussed in the specification on page 17, lines 13-24 and page 3, line 31 to page 4, line 7.

Grounds of Rejection to be Reviewed on Appeal

In the Final Office Action, claims 1-18 were rejected under 35 U.S.C. 103(a) as being unpatentable over Bixel et al. (WO 97/18278) in view of Germaine et al. (WO02/070630) and Gregor in Catalysis Letters (1990, vol 7, pgs. 317-332).

Claim 5 was objected to as lacking a proper antecedent basis for the limitation "prior to the hydrocracking step."

Argument

Rejection of Claims 1-18 under 35 U.S.C. 103(a) over Bixel in view of Germaine and Gregor

Bixel was described as disclosing a process to prepare a base oil having a target viscosity index of above 80 by contacting a crude derived feedstock in the presence of hydrogen and the catalyst and then dewaxing the effluent. Germaine was described as disclosing a process to prepare a waxy raffinate from a Fischer-Tropsch derived feed which is obtained by hydroisomerization of a Fischer-Tropsch synthesis product and then is used to make a base oil with a viscosity index higher than 120. The Examiner took the position that it would have been obvious to insert the product of Germaine into the middle of the process of Bixel to come up with the present invention. This rejection is respectfully traversed.

The present invention is a process to prepare a base oil having a target viscosity index of above 80 and a saturates content of above 90 wt% from a crude derived feedstock which comprises contacting the feedstock in the presence of hydrogen and a catalyst to produce an effluent and then adding to the effluent a Fischer-Tropsch derived fraction boiling at least partly in the base oil range wherein the Fischer-Tropsch derived fraction is obtained by hydroisomerization of a Fischer-Tropsch synthesis product. The process of this invention is advantageous for crude-derived feeds which are not suitable for preparing a base oil having the desired viscosity index such as those which have too high a content of polynuclear aromatics and naphthenics (page 2, lines 8-20, and page 4, lines 23-27, of the specification). It is possible that one may want to use the process of the present invention in other situations but this situation is the one in which it is most useful.

By the Examiner's own admission Bixel describes a process which is fully capable, without modification, of preparing a base oil having a target viscosity index of above 80. In fact,

at page 8, lines 1-7, the reference states that the product produced has a viscosity index of 115 or higher. If the process of Bixel is capable of producing a product with such a high viscosity index, why would anyone reviewing Bixel want to do anything but follow the teachings in the patent to produce a high viscosity index base oil much less look to Fischer-Tropsch art to find something to stick in the middle of the process? Adding a Fischer-Tropsch product in the middle of Bixel's process could only add to the cost of the final product for no reason since the process already produces a base oil with a high viscosity index. There is simply no reason that anyone reading Bixel would think that the ultimate product was unacceptable.

Germaine describes a Fischer-Tropsch derived fraction obtained by hydroisomerization which can be used to produce a base oil with a viscosity index higher than 120 (page 16, lines 3-5). Since the process of Germaine already is fully capable of producing a base oil with a high viscosity index, there is no reason why anyone would look elsewhere to produce the desired high viscosity index base oil. There is no suggestion in Germaine that the fraction should be added to a crude oil product to produce an ultimate product with a high viscosity index.

The Applicants assert that one of ordinary skill in the art would not even consider going beyond the disclosure of Bixel to find a process to produce a high viscosity index base oil since Bixel's process already produces a product with a viscosity index of 115. The same is true for the disclosure of Germaine. There is no reason to combine Germaine with Bixel.

Objection of Claim 5 as lacking a proper antecedent basis

Step (a) of the process as set forth in claim 1 involves contacting a crude derived feedstock in the presence of hydrogen with a catalyst comprising at least on Group VIB metal component and at least one non-noble Group VIII metal component supported on a refractory oxide carrier. Applicants submit that one of ordinary skill in the art would recognize this as constituting a hydrocracking step and would interpret as meaning such. Accordingly, applicants believe that it would be clear to one of skill in the art what is meant by hdrocracking step and to inset the hydrotreating step at the beginning of step (a).

Conclusion

Based on the foregoing arguments, Applicants assert that the claims of the present application would not have been obvious in view of the cited references. It is respectfully requested that this appeal be upheld and that the application be sent back to the Examiner for allowance.

Respectfully submitted,

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CLAIMS APPENDIX

1. A process to prepare a base oil having a target viscosity index of above 80 and a saturates content of above 90 wt% from a crude derived feedstock comprising
(a) contacting a crude derived feedstock in the presence of hydrogen with a catalyst comprising at least one Group VIB metal component and at least one non-noble Group VIII metal component supported on a refractory oxide carrier to produce an effluent;
(b) adding to the effluent of step (a) or part of the effluent of step (a) a Fischer-Tropsch derived fraction boiling at least partly in the base oil range, wherein the Fischer-Tropsch derived fraction is obtained by hydroisomerization of a Fischer-Tropsch synthesis product, in an amount effective to achieve the target viscosity index of the final base oil to produce a mixture; and
(c) dewaxing the mixture as obtained in step (b).

2. The process of claim 1, wherein the crude derived feedstock is a vacuum distillate fraction or a de-asphalted vacuum residue as obtained from residue of an atmospheric distillation of a crude petroleum feed.

3. The process of claim 1, wherein the viscosity index of the crude derived feedstock is below 60.

4. The process of of claim 1, wherein the conversion in step (a) is between 20 and 80 wt%.

5. The process of of claim 1, wherein in step (a) the crude derived feedstock is first subjected to a hydrotreating step prior to the hydrocracking step.

6. The process of claim 5, wherein the conversion in the hydrotreating step is below 30 wt%.

7. The process of claim 1, wherein the kinematic viscosity at 100 °C of the mixture as obtained in step (b) is between 3 and 10 cSt.

8. The process of claim 1, wherein step (c) comprises catalytic dewaxing.

9. The process of claim 1, wherein the dewaxed product of step (c) is subjected to an additional hydrogenation treatment step (d).

10. The process of claim 1, wherein the Fischer-Tropsch derived fraction is a partly isomerized fraction boiling for more than 90 wt% above 300 °C, having a congealing point below 80 °C and a wax content of below 50 wt%.

11. The process of claim 2, wherein the viscosity index of the crude derived feedstock is below 60.

12. The process of claim 2, wherein the conversion in step (a) is between 20 and 80 wt%.

13. The process of claim 2, wherein in step (a) the crude derived feedstock is first subjected to a hydrotreating step prior to the hydrocracking step.

14. The process of claim 13, wherein the conversion in the hydrotreating step is below 30 wt%.

15. The process of claim 2, wherein the kinematic viscosity at 100 °C of the mixture as obtained in step (b) is between 3 and 10 cSt.

16. The process of claim 2, wherein step (c) comprises catalytic dewaxing.

17. The process of claim 2, wherein the dewaxed product of step (c) is subjected to an additional hydrogenation treatment step (d).

18. The process of claim 2, wherein the Fischer-Tropsch derived fraction is a partly isomerized fraction boiling for more than 90 wt% above 300 °C, having a congealing point below 80 °C and a wax content of below 50 wt%.

EVIDENCE APPENDIX

None.

RELATED PROCEEDINGS APPENDIX

None.